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## Technology Games

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## Demolishing Distinctions

Haraway's Cyborg Manifesto [1] removes distinctions and renders uses of language ineffectual by recognising cyborgs as "hybrid entities that are neither wholly technological nor completely organic". The cyborg therefore disrupts "persistent dualisms" and consequently refashions our thinking [2, p.11]. This tactic can also be exploited to question the distinction between language and technology.

In Wittgenstein's terms, the Cyborg Manifesto questions the implicit rules of certain language games. In his *Philosophical Investigations* Wittgenstein likens uses of language to games. His initial illustration includes the words spoken in constructing a building [3, §2–10] and later he offers examples of language games that include measurements, drawings, tables and diagrams. They suggest the boundaries of language are hazy and might be extended to include other forms of human expression.

## Artefacts

Words, like vulgar pots, are crafted bodily from physical materials, but language can also be expressed by speech synthesisers, radios, printers or scoreboards. Words, like any other artefact are manufactured human expressions created with or without the aid of tools.

Like any artefact, or expression, fragments of language create impressions. They affect people, can generate electrical signals or fill pages in a book. Thus words, like tools and weapons, are productive. Aggression, carelessness and caring are expressed with words but also with cars, knives, litter and birthday cakes, for instance.

A breach of the distinction between words and other artefacts suggests that language – Brailled, signed, written and spoken language — is a collection of technologies thus, with the loss of contradistinctions, language games become subsumed into the spectrum of technology games.

## Children's Games

One of Pieter Bruegel the elder's pictures shows children playing games in the street. Artefacts accompany many players and are an integral part of their games:

"...from toddlers to ungainly youths, they roll hoops, walk on stilts, spin tops, ride hobby-horses, engage in mock tournaments, play leap-frog, shout into empty barrels ... dangle streamers ... [while] a boy amuses himself by balancing a broom on one finger." [4, p.85]

Some games engage a group, some just two players, others are conducted alone. In some games, everyone has a similar role, in others there are distinguished roles. Some players are skilled; others are clumsy. Some children drift from game to game. Some games are competitive and others cooperative; some are make-believe. The point of some games seems to be to disrupt other games. Each game is distinguishable by the number of players, the children's behaviour, the artefacts

used and the ways in which they are used.

A classic book on children's games describes the rules for such games [5], but these rules can only be an account of what the children have been observed to do. And where the apparent goal of a game is given, it is similarly an observation about the trend of play. It is to be expected that children simply know how to play the games and learn by listening, watching and imitating others.

## Expression

Playing games is a mode of expression. Within the game players or teams express themselves in individual moves but the whole game too is an expression that might be seen as a move in a broader game. Thus boundaries between games or expressions are artefacts of particular analyses.

Expressions can be transient, like speech, or enduring, like writing. Technology games utilise expressions since moves and the games themselves create lingering impressions on the players, spectators or materials. Participants remember and mimic moves they have seen, and when impressed on a material these by-products of games, can form a series of enduring artefacts.

Expressions are bounded by the availability of materials, time, space, energy, skills and tools. Such constraints can limit linguistic expression but less severely than a game that, for example, aims to build a ship. Constraints are liable distort expression and occasionally render a game unplayable or unrecognisable. To overcome constraints some technology games, therefore, adopt readily available objects, including the impressions left by other games, as components of their moves.

## Innovation

Metaphor, a source of novelty in language, is a benign, evocative, purposeful, grammatical blunder. Donald Davidson [6] regarded metaphors as common words tangled in language games in which "a sentence used metaphorically" is "usually false". Metaphor parades its falsehood and encourages us to seek what was, before the use of the metaphor, an inexpressible impression. Some metaphors fail but others catch on and, consequently, as [3, §23] remarked, "new kinds of language games come into existence".

Translated to technology, metaphor is an innovation the deliberate, apparently inappropriate deployment of an artefact that may allow us to generate new impressions and create novel games. An innovation may prove useless, but may be imitated to become commonplace. Innovation thus can change the ecology hence which technology games survive.

## Effect

In a classic text on games [7, p.5] sees play as "an occasion of pure waste" and separates play from "real life"; yet Glasberg et al. [8] point out, gender, race, class and political identities influences "how we interpret the rules of the games,

and ... facilitates resistance and reinterpretation of our social identities ... even when we think we are simply having fun and playing". Thus while Caillois sees games as creating "no wealth or goods", Glasberg sees them as productive in altering identities as might expected with activities that bring players and artefacts together in close proximity.

Thus play can contribute to the construction of identities, rivalries, alliances that endure beyond episodes of play and hence reinforce or disturb a social order. Play may not bring riches but it can have effects on the players and spectators that change the way other games are played. Concerns over games show there is a widespread belief that games have effects beyond their boundaries [9]. Games therefore become linked by what might be considered their side-effects to create, to paraphrase [10, p.17], flexible networks of technology games. .

### Engineering Task

Rules are constructions summarising past behaviour or expectations of future behaviour. Rules cannot anticipate the circumstances of players so games offer room for manoeuvre nevertheless clumsiness, deceit, improvisation, contradiction or misinterpretation can lead to explicit rules being transgressed. Thus new games emerge by chance. But engineering is about the deliberate creation of novel games and in their professional role engineers are not necessarily the players. Engineers steer new or modified games into existence, where existence implies having material components, established practices for making moves and players willing to play.

The creation of the equipment for a game is wasteful if potential players are unwilling to participate. Skill or equipment or players, however, are not required for discussions about a game. Bruegel's picture illustrates a simulacrum of a game can trigger a conversation.

Engineers therefore create mythical accounts of a game being played, which exemplify the movement of mythical or transposed artefacts and players. If conversations about the mythical game catch on then elaboration of narratives answers questions about the realizability and acceptability of the novel game. Refinement continues until comprehensive stories emerge about how artefacts will be used in a novel game and about the rules of a technology game that will express the required artefacts.

Throughout this game of engineering development engineers deal in visions of games and artefacts and exploit storytelling technologies such as meetings, drawings, mathematics, prototypes, computer programs, films and models.

### Engineering Games

Caillois [7] provides descriptive terms that can be applied to games — competition, chance, mimicry and thrill. Competitions set out criteria for success, for example utility. These criteria of success are characteristics of particular games. In some contexts engineering is an economic game; in others the criterion is effectiveness, sustainability, attractiveness or verity. Often it is an ill-defined combination of these things.

Engineering can also be portrayed as a game of chance that

gambles on closing the gap between a vision and material fulfilment.

Mimicry is a primary tool of the engineer who deals in a variety of simulations, models and prototypes. It is hard to say which is the mimic — the idealised engineering vision or the products derived from the drawings, equations and specifications. Caillois' final descriptive term is akin to thrill. Thrill for the attempt, in the face of uncertainty and unruliness, to transform an ambition into material results which turns engineering into a roller-coaster of hope.

### Conclusion

Technology games are parts of ways of life. The rules of technology games are the customary restrained practices people engage in, in consort with artefacts. Artefacts are not media shaping themselves more closely around human needs but are active participants in technology games which constitute nations, genders, professions and so on. Gradually, the technological ecology changes and consequently self-images change.

Engineering is itself a technology game that attempts to turn visions of other technology games into a material form. Engineers are thus cultural leaders who regulate self-images through innovations in artefacts and proposed rules for their use.

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